Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

TITLE V (MINOR PERMIT REVISION) NO. V-07-032
SGL CARBON, LLC
HICKMAN KY.
AUGUST 2, 2007
LUIS D. FUENTES, REVIEWER

SOURCE ID:	021-075-00001
AGENCY INTEREST:	1440
ACTIVITY:	APE20070001

SOURCE DESCRIPTION:

SGL Carbon, LLC, hereafter "SGL Carbon", located in Hickman, Kentucky, is a graphite electrode manufacturing facility. This operation is classified under the Kentucky Division for Air Quality (DAQ) proposed regulation 401 KAR Chapter 52 as a "major source" of air emissions. Currently, SGL Carbon is operating in accordance with Title V Permit V-01-023 R1 issued June 6, 2005.

The primary activity of SGL Carbon's Hickman, Kentucky plant is the manufacturing of carbon graphite electrodes. This process consists of milling, mixing and extruding petroleum coke to make green electrodes that are then shipped to outside plants for completion.

The raw material petroleum coke is weighed, sized, and pneumatically conveyed to a mixer/cooler pre-heater where it is heated and dropped into the mixer and homogenized. Liquid coal tar pitch and other additives are added to the mixer and blended until the desired target temperature is reached. Once temperature has been attained, a predetermined amount of water is added to reduce the hot mix to the desired extrusion temperature. After water addition, the cooled mix is then dropped to a press to be extruded. The finished carbon graphite electrodes are then ready to be shipped to other facilities for further processing.

In addition to producing green electrodes, a ring bake furnace at the plant allows the facility to bake the green electrodes on site. Following ring furnace baking, the baked electrodes are then cleaned and shipped to other sites for use.

COMMENTS:

Emission Unit No.	Unit Identification	Control Device (Efficiency)	Applicable Regulations
1	Coke Unloading	None	401 KAR 59:010
2	Particle Screening System	Dust Collector (99.50%)	401 KAR 59:010
3	Tanks - Two Coal Tar Pitch and One Extrusion Oil	Condenser (97.67%)	40 CFR 60 Subpart Kb
4	Mixing and Extrusion System	RTO (95%) Scrubber (90%)	401 KAR 59:010
5	Baking System	None	401 KAR 59:010
6	Hargraf Cleaning Machine	Baghouse (99.50%)	401 KAR 61:020
7	Ring Bake Furnace	ESP (96.70%)	401 KAR 59:010
8	Natural Gas Boiler (6.1 mmBtu/hr)	None	401 KAR 61:015
9	Natural Gas Boiler (6.1 mmBtu/hr)	None	401 KAR 61:015
10	ESP Steam Natural Gas Boiler (5.226 mmBtu/hr)	None	401 KAR 59:015
11	Natural Gas Hot Water Heater (2.407 mmBtu/hr)	None	401 KAR 59:015

Emission factors and their source

The emission factors were determined from the AP-42 manual, material balances and engineering calculations. The permittee is required to perform a separate stack test to comply with the particulate emissions limit.

MINOR PERMIT REVISION

A minor revision application was completed recently (July 27, 2007), which included changes to the following emissions units that were addressed in V-01-023 R2:

- Ring Bake Furnace (Emission Unit No.7)
- Coke Unloading (Emission Unit No.1)
- Hargraf Cleaning Machine (Emission Unit No.6)
- Particle Screening (Emission Unit No.2)

EMISSION AND OPERATING CAPS DESCRIPTION:

Please refer to Sections B.1 and B.2 in the Title V operating permit for the operating and emission limits per each process unit at the facility.

The following table summarizes the maximum operating rates and allowable emissions.

Emission Unit No.	Unit Identification	Maximum Operating Rates	Allowable PM/PM_{10} Emissions
1	Coke Unloading	25 tons/hr	26.41 lbs/hr
2	Particle Screening System	14 tons/hr	18.43 lbs/hr
3	Tanks - Two Coal Tar Pitch and One Extrusion Oil	285.4 gallons/hr	--
4	Mixing and Extrusion System a. Eirich mixer b. Eisen Mann RTO	 25 tons/hr 1 mmBtu/hr	 26.41 lbs/hr --
5	Baking System a. Hopper, Conveyors (2), Elevator, Feeder b. Screen and Crusher c. Rotex Screener d. South and North Silos e. Bin f. Feeders (2) and Vacuum System	 20 tons/hr 8 tons/hr 16 tons/hr 20 tons/hr 10 tons/hr 20 tons/hr	 23.00 lbs/hr 13.03 lbs/hr 20.02 lbs/hr 23.00 lbs/hr 14.96 lbs/hr 23.00 lbs/hr
6	Hargraf Cleaning Machine	15 tons/hr	25.16 lbs/hr
7	Ring Bake Furnace	3.995 tons/hr 0.00638 mmscf/hr	8.47 lbs/hr --
8	Natural Gas Boiler (6.1 mmBtu/hr)	0.006 mmscf/hr	--
9	Natural Gas Boiler (6.1 mmBtu/hr)	0.006 mmscf/hr	--
10	ESP Steam Natural Gas Boiler (5.226 mmBtu/hr)	0.0051 mmscf/hr	--
11	Natural Gas Hot Water Heater (2.407 mmBtu/hr)	0.0024 mmscf/hr	--

PERIODIC MONITORING:

Unit 02: Particle Screening System

The pressure drop across the baghouse filters must be controlled daily to maintain sufficient particulate removal to remain in compliance.

Unit 04: Mixing and Extrusion System

The liquid input to the wet scrubber and the thermal oxidizer internal temperature must be controlled daily to maintain sufficient particulate removal to remain in compliance.

Unit 07: Ring Bake Furnace

The permittee shall monitor and control the monthly green anode throughput for green anode baking. For the electrostatic precipitators the voltage across the ESP plates shall be measured hourly and the current for each transformer shall be set hourly.

The following monitoring requirements are applicable to all units:
The permittee shall monitor the amount of material processed and the hours of operation on a monthly basis. There shall also be a visual observation of the opacity from each stack on a weekly basis.

OPERATIONAL FLEXIBILITY:

None

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.